3/6 #6

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RAW SEQUENCE LISTING   DATE: 03/06/2002 8.5
PATENT APPLICATION: US/10/003,405   TIME: 13:01:01

Input Set : A:\SEQ FOR DISK
Output Set: N:\CRF3\03062002\J003405.raw

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    3 <110> APPLICANT: Ruan, Yong-Ling
    4         Furbank, Robert T.
    5         Danny, Llewellyn J.
    7 <120> TITLE OF INVENTION: Modification of sucrose synthase gene expression in plant
tissue and
    8         uses therefor
   10 <130> FILE REFERENCE: GHSUSY WO1
C--> 12 <140> CURRENT APPLICATION NUMBER: US/10/003,405
C--> 12 <141> CURRENT FILING DATE: 2000-12-18
   12 <150> PRIOR APPLICATION NUMBER: 60/251852
   13 <151> PRIOR FILING DATE: 2000-12-08
   15 <160> NUMBER OF SEQ ID NOS: 6
   17 <170> SOFTWARE: PatentIn version 3.1
   19 <210> SEQ ID NO: 1
   20 <211> LENGTH: 2625
   21 <212> TYPE: DNA
   22 <213> ORGANISM: Gossypium hirsutum
   24 <220> FEATURE:
   25 <221> NAME/KEY: misc_feature
   26 <222> LOCATION: (1240)..(1240)
   27 <223> OTHER INFORMATION: n = any nucleotide (a,g,c,t)
   29 <220> FEATURE:
   30 <221> NAME/KEY: CDS
   31 <222> LOCATION: (1)..(2625)
   32 <223> OTHER INFORMATION:
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   36 Met Ala Glu Arg Ala Leu Thr Arg Val His Ser Leu Arg Glu Arg Leu
   37 1               5                   10                  15
   39 gat gag acc ctt ctt gct cac agg aac gag att ttg gcc ttg ctc tca     96
   40 Asp Glu Thr Leu Leu Ala His Arg Asn Glu Ile Leu Ala Leu Leu Ser
   41             20                  25                  30
   43 agg atc gag ggc aaa gga aaa gga att ctg caa cac cat caa att att    144
   45 Arg Ile Glu Gly Lys Gly Lys Gly Ile Leu Gln His His Gln Ile Ile
   45         35                  40                  45
   47 cta gag ttt gaa gct atc cct gaa gag aac aga aag aag ctc gct aat    192
   48 Leu Glu Phe Glu Ala Ile Pro Glu Glu Asn Arg Lys Lys Leu Ala Asn
   49     50                  55                  60
   51 ggt gca ttt ttt gaa gta ttg aag gct agt cag gaa gcg atc gtg ttg    240
   52 Gly Ala Phe Phe Glu Val Leu Lys Ala Ser Gln Glu Ala Ile Val Leu
   53 65                  70                  75                  80
   55 cct cca tgg gtt gca ctt gct gtt cgt cca agg cct ggt gtt tgg gag    288
   56 Pro Pro Trp Val Ala Leu Ala Val Arg Pro Arg Pro Gly Val Trp Glu
   57                     85                  90                  95
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                 Input Set : A:\SEQ FOR DISK
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59 tac att aga gtg aat gtt cac gcc ctt gtt gtt gag gaa ctc act gtt      336
60 Tyr Ile Arg Val Asn Val His Ala Leu Val Val Glu Glu Leu Thr Val
61              100                 105                 110
63 gct gag tat ctc cac ttc aag gaa gag ctt gtt gat gga agt tca aat      384
64 Ala Glu Tyr Leu His Phe Lys Glu Glu Leu Val Asp Gly Ser Ser Asn
65              115                 120                 125
67 gga aac ttt gtt ttg gaa ttg gat ttt gag ccc ttc aac tca tca ttc      432
68 Gly Asn Phe Val Leu Glu Leu Asp Phe Glu Pro Phe Asn Ser Ser Phe
69  130                 135                 140
71 ccc cgc cca act ctt tca aaa tcc att ggt aat ggt gtg gag ttc cta      480
72 Pro Arg Pro Thr Leu Ser Lys Ser Ile Gly Asn Gly Val Glu Phe Leu
73 145                 150                 155                 160
75 aat cgt cac ctt tcg gca aaa ttg ttc cat gac aag gag agc atg cac      528
76 Asn Arg His Leu Ser Ala Lys Leu Phe His Asp Lys Glu Ser Met His
77              165                 170                 175
79 cct ttg ctc gaa ttc ctc aga gtc cat tgt cac aag ggc aag aac atg      576
80 Pro Leu Leu Glu Phe Leu Arg Val His Cys His Lys Gly Lys Asn Met
81              180                 185                 190
83 atg ttg aat gac aga att cag aac ttg aat gct ctt caa cat gtt ttg      624
84 Met Leu Asn Asp Arg Ile Gln Asn Leu Asn Ala Leu Gln His Val Leu
85              195                 200                 205
87 agg aaa gca gag gag tat ctt ggt acc cta cct cct gag aca cca tgt      672
88 Arg Lys Ala Glu Glu Tyr Leu Gly Thr Leu Pro Pro Glu Thr Pro Cys
89  210                 215                 220
91 gcc gaa ttc gaa cac cgg ttc cag gaa atc ggt ttg gaa aga ggt tgg      720
92 Ala Glu Phe Glu His Arg Phe Gln Glu Ile Gly Leu Glu Arg Gly Trp
93 225                 230                 235                 240
95 ggt gac acc gca gaa cgc gtg ctc gag atg atc caa ctc ctt ttg gat      768
96 Gly Asp Thr Ala Glu Arg Val Leu Glu Met Ile Gln Leu Leu Leu Asp
97              245                 250                 255
99 ctt ctt gag gca act gat cct tgc acc ctt gag aag ttc ctt ggg aga      816
100 Leu Leu Glu Ala Thr Asp Pro Cys Thr Leu Glu Lys Phe Leu Gly Arg
101              260                 265                 270
103 atc ccc atg gtg ttc aat gtt gtg att ctc act ccc cac gga tac ttc     864
104 Ile Pro Met Val Phe Asn Val Val Ile Leu Thr Pro His Gly Tyr Phe
105              275                 280                 285
107 gct caa gac aat gtt ttg ggg tat ccc gac acc ggt ggg cag gtt gtt     912
108 Ala Gln Asp Asn Val Leu Gly Tyr Pro Asp Thr Gly Gly Gln Val Val
109  290                 295                 300
111 tac atc ttg gat caa gtc cga gct ttg gag aat gag atg ctc ctc cgt     960
112 Tyr Ile Leu Asp Gln Val Arg Ala Leu Glu Asn Glu Met Leu Leu Arg
113 305                 310                 315                 320
115 ata aag caa caa gga ctc aac atc acc cct cga atc ctc att att act     1008
116 Ile Lys Gln Gln Gly Leu Asn Ile Thr Pro Arg Ile Leu Ile Ile Thr
117              325                 330                 335
119 aga ctt ctt cct gat gct gtc gga aca aca tgc ggt caa cga ctt gag     1056
120 Arg Leu Leu Pro Asp Ala Val Gly Thr Thr Cys Gly Gln Arg Leu Glu
121              340                 345                 350
123 aaa gta tac gga aca gag cac tcg gat att ctt cga gta ccc ttc aga     .1104
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                    RAW SEQUENCE LISTING              DATE: 03/06/2002
                    PATENT APPLICATION:  US/10/003,405   TIME: 13:01:01

                    Input Set : A:\SEQ FOR DISK
                    Output Set: N:\CRF3\03062002\J003405.raw
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      124 Lys Val Tyr Gly Thr Glu His Ser Asp Ile Leu Arg Val Pro Phe Arg
      125           355               360               365
      127 aca gaa aag gga att gtt cga aaa tgg atc tca aga ttt gaa aaa gtc      1152
      128 Thr Glu Lys Gly Ile Val Arg Lys Trp Ile Ser Arg Phe Glu Lys Val
      129           370               375               380
      131 tgg cca tac ttg gaa acc tac aca gag gat gtt gct cat gaa atc tcc      1200
      132 Trp Pro Tyr Leu Glu Thr Tyr Thr Glu Asp Val Ala His Glu Ile Ser
      133 385               390               395               400
W--> 135 aaa gag ttg cac ggc acg cca gat ctg atc atc gga aac nac agc gac      1248
W--> 136 Lys Glu Leu His Gly Thr Pro Asp Leu Ile Ile Gly Asn Xaa Ser Asp
      137           405               410               415
      139 ggc aat atc gtc gcc tcc ttg ctc gca cat aaa tta ggt gtc aca cag      1296
      140 Gly Asn Ile Val Ala Ser Leu Leu Ala His Lys Leu Gly Val Thr Gln
      141           420               425               430
      143 tgc acc atc gcc cat gct ttg gag aag aca aaa tat cca gat tca gat      1344
      144 Cys Thr Ile Ala His Ala Leu Glu Lys Thr Lys Tyr Pro Asp Ser Asp
      145           435               440               445
      147 atc tat tgg aag aag ctt gaa gac aaa tac cat ttc tct tgc caa ttt      1392
      148 Ile Tyr Trp Lys Lys Leu Glu Asp Lys Tyr His Phe Ser Cys Gln Phe
      149     450               455               460
      151 aca gct gat ctt ttt gca atg aac cat aca gat ttc atc atc acc agt      1440
      152 Thr Ala Asp Leu Phe Ala Met Asn His Thr Asp Phe Ile Ile Thr Ser
      153 465               470               475               480
      155 act ttc cag gaa att gca gga agc aag gac act gtt ggt caa tac gag      1488
      156 Thr Phe Gln Glu Ile Ala Gly Ser Lys Asp Thr Val Gly Gln Tyr Glu
      157           485               490               495
      159 agc cac act gct ttc act ctt cct ggt ctc tac cgt gtt gta cat ggt      1536
      160 Ser His Thr Ala Phe Thr Leu Pro Gly Leu Tyr Arg Val Val His Gly
      161           500               505               510
      163 atc gat gtg ttt gat ccc aaa ttc aac att gtt tcc cct ggt gct gat      1584
      164 Ile Asp Val Phe Asp Pro Lys Phe Asn Ile Val Ser Pro Gly Ala Asp
      165           515               520               525
      167 atg gag ata tac ttc cct tac acc gaa gag aag cgg agg ttg aag cat      1632
      168 Met Glu Ile Tyr Phe Pro Tyr Thr Glu Glu Lys Arg Arg Leu Lys His
      169           530               535               540
      171 ttc cat cct gag atc gaa gac ctt ctt tac acc aaa gtt gag aat gaa      1680
      172 Phe His Pro Glu Ile Glu Asp Leu Leu Tyr Thr Lys Val Glu Asn Glu
      173 545               550               555               560
      175 gaa cac tta tgt gtg ctc aat gac cgc aac aag cca att ctg ttc aca      1728
      176 Glu His Leu Cys Val Leu Asn Asp Arg Asn Lys Pro Ile Leu Phe Thr
      177           565               570               575
      179 atg cca agg ctt gat cgt gtc aag aac tta acc gga ctc gtc gag tgg      1776
      180 Met Pro Arg Leu Asp Arg Val Lys Asn Leu Thr Gly Leu Val Glu Trp
      181           580               585               590
      183 tgc ggc aag aac cca aag ttg cgt gag ttg gct aac ctc gta gtt gta      1824
      184 Cys Gly Lys Asn Pro Lys Leu Arg Glu Leu Ala Asn Leu Val Val Val
      185           595               600               605
      187 ggt ggt gat agg cga aag gaa tct aaa gat ttg gaa gag aag gct gaa      1872
      188 Gly Gly Asp Arg Arg Lys Glu Ser Lys Asp Leu Glu Glu Lys Ala Glu
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                    RAW SEQUENCE LISTING              DATE: 03/06/2002
                    PATENT APPLICATION:  US/10/003,405  TIME: 13:01:01

                    Input Set : A:\SEQ FOR DISK
                    Output Set: N:\CRF3\03062002\J003405.raw


189      610                    615                    620
191 atg aag aaa atg ttt gag ctg atc gac aag tac aac ttg aac ggc caa    1920
192 Met Lys Lys Met Phe Glu Leu Ile Asp Lys Tyr Asn Leu Asn Gly Gln
193 625                        630                    635            640
195 ttc aga tgg ata tca tct caa atg aac aga atc cga aat gtt gaa ctt    1968
196 Phe Arg Trp Ile Ser Ser Gln Met Asn Arg Ile Arg Asn Val Glu Leu
197                      645                    650                655
199 tac cga tac att tgc gac acg aaa ggt gcc ttt gta cag cct gca ttg    2016
200 Tyr Arg Tyr Ile Cys Asp Thr Lys Gly Ala Phe Val Gln Pro Ala Leu
201              660                    665                    670
203 tat gaa gcc ttt gga ttg aca gtt gtg gag gca atg act tgc ggt ttg    2064
204 Tyr Glu Ala Phe Gly Leu Thr Val Val Glu Ala Met Thr Cys Gly Leu
205          675                    680                    685
207 cca aca ttc gca acc tgt aac ggt gga cca gcc gag att att gtc cat    2112
208 Pro Thr Phe Ala Thr Cys Asn Gly Gly Pro Ala Glu Ile Ile Val His
209      690                    695                    700
211 ggg aaa tct ggt ttc aac att gat cct tac cat ggt gat caa gct gct    2160
212 Gly Lys Ser Gly Phe Asn Ile Asp Pro Tyr His Gly Asp Gln Ala Ala
213 705                        710                    715            720
215 gac ata ctc gtc gat ttc ttt gaa aag tgt aag aaa gat cca tct cac    2208
216 Asp Ile Leu Val Asp Phe Phe Glu Lys Cys Lys Lys Asp Pro Ser His
217                      725                    730                735
219 tgg gat aag atc tcc caa gga ggc ttg aaa cga ata gag gag aag tat    2256
220 Trp Asp Lys Ile Ser Gln Gly Gly Leu Lys Arg Ile Glu Glu Lys Tyr
221              740                    745                    750
223 aca tgg aag att tac tcg gag aga cta ttg acc ctg aca gga gtg tat    2304
224 Thr Trp Lys Ile Tyr Ser Glu Arg Leu Leu Thr Leu Thr Gly Val Tyr
225          755                    760                    765
227 gga ttc tgg aag cat gtt tcc aac ctt gaa cgc cgt gag agt cgt cgt    2352
228 Gly Phe Trp Lys His Val Ser Asn Leu Glu Arg Arg Glu Ser Arg Arg
229      770                    775                    780
231 tac ctt gag atg ttt tat gct ctt aag tac cgt aag ctg gct gaa tca    2400
232 Tyr Leu Glu Met Phe Tyr Ala Leu Lys Tyr Arg Lys Leu Ala Glu Ser
233 785                        790                    795            800
235 gtt cca ttg gca gag gag taa att gaa cct gtt aaa taa cat tgg gcc    2448
236 Val Pro Leu Ala Glu Glu     Ile Glu Pro Val Lys     His Trp Ala
237              805                    810
239 ggt ttt tct tgg aga ata ata ttc tgt ttt gta att tca att gga gaa    2496
240 Gly Phe Ser Trp Arg Ile Ile Phe Cys Phe Val Ile Ser Ile Gly Glu
241 815                        820                    825            830
243 gct cct ttg tat ttc atc ttg tct ttt cct ttt ctt ttc gcc ggc       2544
244 Ala Pro Leu Tyr Phe Ile Leu Ser Phe Pro Phe Pro Phe Phe Ala Gly
245              835                    840                    845
247 att gtt tga aca tgg ggt tgt gcg ccc gtc aat tcc agt taa ata tgg    2592
248 Ile Val     Thr Trp Gly Cys Ala Pro Val Asn Ser Ser     Ile Trp
249              850                    855                    860
251 tga ctt ttg ttt ttc aaa aaa aaa aaa aaa aaa                       2625
252     Leu Leu Phe Phe Lys Lys Lys Lys Lys Lys
253                      865                    870
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                    RAW SEQUENCE LISTING                    DATE: 03/06/2002
                    PATENT APPLICATION:  US/10/003,405      TIME: 13:01:02

                    Input Set : A:\SEQ FOR DISK
                    Output Set: N:\CRF3\03062002\J003405.raw
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255 <210> SEQ ID NO: 2
256 <211> LENGTH: 806
257 <212> TYPE: PRT
258 <213> ORGANISM: Gossypium hirsutum
260 <220> FEATURE:
261 <221> NAME/KEY: misc_feature
262 <222> LOCATION: (414)..(414)
263 <223> OTHER INFORMATION: The 'Xaa' at location 414 stands for Asn, Asp, His, or Tyr.
265 <220> FEATURE:
266 <221> NAME/KEY: misc_feature
267 <222> LOCATION: (1240)..(1240)
269 <223> OTHER INFORMATION: n = any nucleotide (a,g,c,t)
271 <400> SEQUENCE: 2
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274 1                   5                   10                  15
276 Asp Glu Thr Leu Leu Ala His Arg Asn Glu Ile Leu Ala Leu Leu Ser
277             20                  25                  30
279 Arg Ile Glu Gly Lys Gly Gly Ile Leu Gln His His Gln Ile Ile
280         35                  40                  45
282 Leu Glu Phe Glu Ala Ile Pro Glu Glu Asn Arg Lys Lys Leu Ala Asn
283     50                  55                  60
285 Gly Ala Phe Phe Glu Val Leu Lys Ala Ser Gln Glu Ala Ile Val Leu
286 65                  70                  75                  80
288 Pro Pro Trp Val Ala Leu Ala Val Arg Pro Arg Pro Gly Val Trp Glu
289             85                  90                  95
291 Tyr Ile Arg Val Asn Val His Ala Leu Val Val Glu Glu Leu Thr Val
292             100                 105                 110
294 Ala Glu Tyr Leu His Phe Lys Glu Gln Leu Val Asp Gly Ser Ser Asn
295     115                 120                 125
297 Gly Asn Phe Val Leu Glu Leu Asp Phe Glu Pro Phe Asn Ser Ser Phe
298     130                 135                 140
300 Pro Arg Pro Thr Leu Ser Lys Ser Ile Gly Asn Gly Val Glu Phe Leu
301 145                 150                 155                 160
303 Asn Arg His Leu Ser Ala Lys Leu Phe His Asp Lys Glu Ser Met His
304             165                 170                 175
306 Pro Leu Leu Glu Phe Leu Arg Val His Cys His Lys Gly Lys Asn Met
307             180                 185                 190
309 Met Leu Asn Asp Arg Ile Gln Asn Leu Asn Ala Leu Gln His Val Leu
310     195                 200                 205
312 Arg Lys Ala Glu Glu Tyr Leu Gly Thr Leu Pro Pro Glu Thr Pro Cys
313     210                 215                 220
316 Ala Glu Phe Glu His Arg Phe Gln Glu Ile Gly Leu Glu Arg Gly Trp
317 225                 230                 235                 240
319 Gly Asp Thr Ala Glu Arg Val Leu Glu Met Ile Gln Leu Leu Leu Asp
320             245                 250                 255
322 Leu Leu Glu Ala Thr Asp Pro Cys Thr Leu Glu Lys Phe Leu Gly Arg
323             260                 265                 270
325 Ile Pro Met Val Phe Asn Val Val Ile Leu Thr Pro His Gly Tyr Phe
326     275                 280                 285
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Use of n and / or Xaa has been detected in the Sequence Listing. Review the Sequence Listing to ensure a corresponding explanation is present in the <220> to <223> fields of each sequence using n or Xaa.

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VERIFICATION SUMMARY              DATE: 03/06/2002
PATENT APPLICATION:  US/10/003,405    TIME: 13:01:03

Input Set : A:\SEQ FOR DISK
Output Set: N:\CRF3\03062002\J003405.raw
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L:12 M:270 C: Current Application Number differs, Replaced Current Application No
L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:135 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:136 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:349 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2
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